[089] What is claimed is:

1. A method of treating diabetes in a human, said method comprising administering to a human an effective amount of a human recombinant GAD65 protein and at least one adjuvant for an effective time so as to stimulate the production of insulin in said human to a level above that existing prior to said administration.

2. A method according to claim 1 wherein said administration is subcutaneous.

3. A method according to claim 1 wherein said adjuvant is aluminum hydroxide.

4. A method according to claim 1 wherein said human recombinant GAD65 protein and said at least one adjuvant are administered in a dosage such that said human recombinant GAD65 protein is at a level of at least 20 micrograms.

5. A method according to claim 1 wherein said human recombinant GAD65 protein and said at least one adjuvant are administered in a dosage such that said human recombinant GAD65 protein is in the range of from about 20 micrograms to about 500 micrograms.

6. A method according to claim 1 additionally comprising administering at least one booster dosage of said human recombinant GAD65 protein following the first administration of said human recombinant GAD65 protein, and wherein said booster is administered in a dosage such that said human recombinant GAD65 protein is at a level of at least 20 micrograms.

7. A method according to claim 1 additionally comprising administering at least one booster dosage of said human recombinant GAD65 protein following the first administration of said human recombinant GAD65 protein, and wherein said booster is

administered in a dosage such that said human recombinant GAD65 protein is in the range of from about 20 micrograms to about 500 micrograms.

8. A method for suppressing or reducing the immune response of a human to glutamic acid decarboxylase comprising administering to said human an effective immunosuppressive dose of human recombinant GAD65 protein.

9. A method according to claim 8 wherein said administration is subcutaneous.

10. A method according to claim 8 wherein said adjuvant is aluminum hydroxide.

11. A method according to claim 8 wherein said human recombinant GAD65 protein and said at least one adjuvant are administered in a dosage such that said human recombinant GAD65 protein is at a level of at least 20 micrograms.

12. A method according to claim 8 wherein said human recombinant GAD65 protein and said at least one adjuvant are administered in a dosage such that said human recombinant GAD65 protein is in the range of from about 20 micrograms to about 500 micrograms.

13. A method according to claim 8 additionally comprising administering at least one booster dosage of said human recombinant GAD65 protein following the first administration of said human recombinant GAD65 protein, and wherein said booster is administered in a dosage such that said human recombinant GAD65 protein is at a level of at least 20 micrograms.

13. A method according to claim 13 wherein the level of beta cell function is determined through measurement of CD4+ lymphocytes prior to said at least one booster dosage.

14. A method according to claim 8 additionally comprising administering at least one booster dosage of said human recombinant GAD65 protein following the first administration of said human recombinant GAD65 protein, and wherein said booster is administered in a dosage such that said human recombinant GAD65 protein is in the range of from about 20 micrograms to about 500 micrograms.

15. A method according to claim 14 wherein the level of beta cell function is determined through measurement of CD4+ lymphocytes prior to said at least one booster dosage.

16. A pharmaceutical composition for suppressing or reducing the immune response of a human to glutamic acid decarboxylase comprising a dosage form comprising an effective immunosuppressive dose of human recombinant GAD65 protein and a pharmaceutically acceptable adjuvant.

17. A method to increase insulin production in a diabetes patient with beta cell antibodies, said method comprising administering to a human an effective amount of beta cell antigen in a pharmaceutical carrier for an effective time so as to stimulate the production of insulin in said human to a level above that existing prior to said administration.

18. A method according to claim 17 wherein said beta cell antigens include at least one component selected from the group consisting of: GAD65, GAD67, insulin, insulin-peptide, proinsulin, proinsulinpeptide, sulfatide, heat schock protein, S100 beta protein, IA-2 , or any peptide, altered peptide ligand, chimeric molecule, or conjugated molecule or fragment thereof.

19. A method to increase insulin production in a diabetes patient with beta cell antibodies, said method comprising administering to a human an effective amount of DNA or RNA nucleotides coding for at least one beta cell antigen, in a pharmaceutical carrier and for an effective time so as to stimulate the production of insulin in said human to a level above that existing prior to said administration.

20. A method according to claim 17 wherein said DNA or RNA nucleotides codes for at least one component selected from the group consisting of: GAD65, GAD67, insulin, insulin-peptide, proinsulin, proinsulinpeptide, sulfatide, heat schock protein, S100 beta protein, IA-2 , or any peptide, altered peptide ligand, or by anti-sense oligos to at least one of said nucleotide.

21. A method according to claim 18 wherein at least one said component is produced recombinantly in a prokaryotic expression system capable of posttranslational palmitoylation.

22. A method according to claim 21 wherein the expression system wused to express said component is baculovirus grown in Spodotera frugiperda 9 (Sf9) cells.

23. A method according to claim 17 wherein said administration is selected from the goup consisting of subcutaneous, intravenous, oral and gene therapy adminsitration.

24. A method according to claim 18 wherein said administration is selected from the goup consisting of subcutaneous, intravenous, oral and gene therapy adminsitration.

25. A method according to claim 19 wherein said administration is selected from the goup consisting of subcutaneous, intravenous, oral and gene therapy adminsitration.

26. A method according to claim 18, wherein said at least one component is administered in a dosage such that at least one of said components is in the range of from about 5 micrograms to about 100 micrograms.

27. A method according to claim 18, wherein said at least one component is administered in a dosage such that at least one of said components is in the range of from about 0.001 mgs/kg to about 0.1mgs/kg.

28. A method according to claim 18 additionally comprising administering at least one booster dosage of said components following said administration, and wherein said booster is administered in a dosage such that at least one of said components is in the range of from about 5 micrograms to about 100 micrograms.

29. A method according to claim 18 additionally comprising administering at least one booster dosage of said components following said administration, and wherein said booster is administered in a dosage such that at least one of said components is in the range of from about 0.001 mgs/kg to about 0.1mgs/kg.

30. A method to treat beta cell inflammation comprising *in vivo* activation of regulatory CD4+CD25+ T cell subsets.

31. A method to activate regulatory CD4+CD25+ T cells comprising administering an effective amount of at least one component selected from the group consisting of beta cell antigens include at least one component selected from the group consisting of: GAD65, GAD67, insulin, insulin-peptide, proinsulin, proinsulinpeptide, sulfatide, heat schock protein, S100 beta protein, IA-2 , or any peptide, altered peptide ligand, chimeric molecule, or conjugated molecule or fragment thereof.

32. A pharmaceutical composition for treatment of diabetes comprising of at least one of the components beta cell antigens include at least one component selected from the group consisting of: GAD65, GAD67, insulin, insulin-peptide, proinsulin, proinsulinpeptide, sulfatide, heat schock protein, S100 beta protein, IA-2 , or any peptide, altered peptide ligand, chimeric molecule, or conjugated molecule or fragment thereof, said at least one component produced produced recombinantly in a prokaryotic expression system capable of posttranslational palmitoylation.

33. A pharmaceutical composition according to claim 32 additionally comprising a Zwittergent present in a concentration relation to said at least one said component of from about 1:1 to about 1:8.